WHAT IS CLAIMED IS:

1. An infrared optical gas analyzer, comprising:

a cuvette containing the gas mixture to be measured;

a first multispectral detector;

a first infrared optical radiation source positioned such that the radiation emitted in a first wavelength range reaches the first multispectral detector through the interior space of the cuvette;

a second multispectral detector;

a second radiation source provided such that the radiation emitted in a second wavelength range reaches the second multispectral detector through the interior space of the cuvette, said first wavelength range and said second wavelength range being selected such that they will be different from one another.

2. An infrared optical gas analyzer in accordance with claim 1, wherein the radiation emitted by the first infrared optical radiation source extends in parallel to the radiation emitted by the second infrared optical radiation source and it travels over a path of equal length.

3. An infrared optical gas analyzer in accordance with claim 1, wherein the radiation emitted by the first infrared optical radiation source extends in parallel to the radiation emitted by the second infrared optical radiation source and travels over a path of different length.

4. An infrared optical gas analyzer in accordance with claim 1, wherein the radiation emitted by the first infrared optical radiation source extends at right angles to the radiation emitted by the second infrared optical radiation source and travels over a path of different length.

5. An infrared optical gas analyzer, comprising:

an infrared optical radiation source arrangement;

a first multispectral detector;

a second multispectral detector;

a cuvette containing the gas mixture to be measured, said infrared optical radiation source being positioned such that the radiation emitted in a first wavelength range reaches the first multispectral detector through the interior space of the cuvette and radiation emitted in a second wavelength range reaches the second multispectral detector through the interior space of the cuvette, said first wavelength range and said second wavelength range being selected such that they will be different from one another.

6. An infrared optical gas analyzer in accordance with claim 5, wherein said infrared optical radiation source arrangement includes a dichroic beam splitter wherein radiation emitted in the first wavelength range passes unhindered through said dichroic beam splitter and reaches the first multispectral detector and the radiation emitted in the second wavelength range is reflected by the dichroic beam splitter and reaches the second multispectral detector through

the interior space of the cuvette.

7. An infrared optical gas analyzer in accordance with claim 5, wherein said infrared optical radiation source arrangement comprises a first infrared optical radiation source positioned such that the radiation emitted in the first wavelength range reaches the first multispectral detector through the interior space of the cuvette and second radiation source provided such that the radiation emitted in the second wavelength range reaches the second multispectral detector through the interior space of the cuvette.

8. An infrared optical gas analyzer in accordance with claim 7, wherein the radiation emitted by the first infrared optical radiation source extends in parallel to the radiation emitted by the second infrared optical radiation source and it travels over a path of equal length.

9. An infrared optical gas analyzer in accordance with claim 7, wherein the radiation emitted by the first infrared optical radiation source extends in parallel to the radiation emitted by the second infrared optical radiation source and travels over a path of different length.

10. An infrared optical gas analyzer in accordance with claim 7, wherein the radiation emitted by the first infrared optical radiation source extends at right angles to the radiation emitted by the second infrared optical radiation source and travels over a path of different length.

11. A process for determining gas concentrations with an infrared optical gas analyzer, the process comprising the steps of:

providing an infrared optical radiation source;

providing a first multispectral detector;

providing a second multispectral detector;

providing a cuvette containing the gas mixture to be measured;

positioning the optical radiation source such that the radiation emitted in a first wavelength range reaches the first multispectral detector through the interior space of the cuvette and radiation emitted in a second wavelength range reaches the second multispectral detector through the interior space of the cuvette;

selecting said first wavelength range and said second wavelength range such that they will be different from one another;

sending the radiation received by the first multispectral detector in the first wavelength range and sending the radiation received by the second multispectral detector in the second wavelength range as signals to an evaluating and control unit; and

calculating at the evaluating and control unit values for the concentrations of a first group of gases contained in the gas mixture from the signals of the radiation in the first wavelength range, which are received by the first multispectral detector;

calculating at the evaluating and control unit values for the concentrations of a second group of gases contained in the gas mixture from the signals of the radiation in the second wavelength range, which are received by the second multispectral detector.

12. A process in accordance with claim 11, wherein the signals of the radiation in the first wavelength range are used by the evaluating and control unit for the correction of the signals of the radiation in the first wavelength range in order to compensate cross sensitivities of the multispectral detector to the first group of gases contained in the gas mixture in the calculation of the concentrations of the second group of gases contained in the gas mixture.

13. A process in accordance with claim 11, further comprising the step of:

using the signals of the radiation in the second wavelength range by the evaluating and control unit for the correction of the radiation in the wavelength range in order to compensate the cross sensitivities of the multispectral detector to the second group of gases contained in the gas mixture in the calculation of the concentrations of the first group of gases contained in the gas mixture.